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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/034,336	03/04/1998	HAJIME AGA	AGA-6	3212

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EXAMINER

MORAN, MARJORIE A

ART UNIT	PAPER NUMBER
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1631

28

DATE MAILED: 12/31/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/034,336

Applicant(s)

AGA ET AL.

Examiner

Morjorie Moran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5, 10 and 31-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5, 10 and 32-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☒ Other: *detailed action*.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/15/01 has been entered.

Claims 5, 10, and 31-36 are pending. All rejections and objections not repeated below are hereby withdrawn.

Claim Objections

Claim 33 is objected to because of the following informalities: the term "pollutant" in line 12 should be --pullulan--. The term "art" in line 13 should be --at--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5, 10, and 31-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 5 and 33 recite the phrase "in need thereof" with regard to a plant. It is unclear what the plant is in need of; i.e. naturally occurring active-oxygen-eliminating activity, inhibition of such activity, or a decrease in inhibition of such activity, therefore the claims are indefinite. In

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addition, claims 5 and 33 recite that the plant is need "when the fresh plant is sliced or disrupted ...". It is unclear what occurs when the plant is sliced or disrupted; i.e. the activity, inhibition of activity, a decrease in inhibition of the activity, or merely the need for something, therefore the claims are further indefinite. If applicant intends a method of inhibiting the decrease of active-oxygen-eliminating activity in a plant wherein the decrease in said activity is associated with slicing or disruption of a plant or edible plant part, then the examiner suggests that applicant rewrite the claims to clearly reflect this intent.

Claims 5 and 33 recite the phrase "effective amount" with regard to trehalose in lines 11 and 10, respectively. It is unclear what the amount of trehalose is intended to be effective for; i.e. inhibition alone, or oxygen-eliminating activity only, a combination of inhibition and oxygen-eliminating activity, or another activity (e.g. sweetening), therefore the claims are indefinite.

Claim 5 limits an inhibitory agent to comprise "at least about" 20% trehalose in its penultimate line. The term "at least" encompasses a range of 20% and above, but excludes any amount below 20%. The term "about" encompasses a range both above and below 20%. The combination of terms "at least" and "about" renders the range of concentrations intended by applicant unclear, therefore use of the term "at least about" renders the claim indefinite.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5, 10, and 31-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over MARUTA *et al.* (US 5,472,863), as supported by CARDONA (DE 3552309 A1).

Claims 5 and 33 recite methods of inhibiting the decrease of naturally-occurring active-oxygen-eliminating activity by adding a composition (agent) comprising or consisting of trehalose to a *fresh* plant or edible part thereof which has been sliced or disrupted, wherein the composition is homogeneously incorporated into an aqueous system. Claims 5 and 33 also recite that the composition may comprise pullulan or cyclodextrin or may consist of trehalose and pullulan and/or cyclodextrin, and limits the amount of trehalose in the composition to at least 20 w/w%, and limits the amount of the composition added to the plant to at least 1%. Claims 10 and 36 limit the methods to further comprise a sterilization and/or drying step. Claims 31 and 35 limit the plant of the methods to a juicy form. Claims 32 and 36 limit the inhibitory agent of the method to "contain" at least one of pullulan and cyclodextrin.

MARUTA teaches addition of trehalose to a variety of foodstuffs, wherein trehalose may be used to stabilize the activity of biologically active substances, including various known antioxidants (col's 13-14, esp. col. 13, lines 1-16 and 23-26). MARUTA teaches that his trehalose may be added to edible wild plants (col. 13, line 40), baby food (col. 13, line 51), juice (col. 13, line 46), and fresh pickles (col. 13, lines 26-27). MARUTA teaches that a composition

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comprising trehalose (an inhibitory agent) may be added to liquids at 3% (w/w) or to solids in an aqueous system at 20% (w/w), (col. 32-33, Examples B-4 and B-9). MARUTA teaches that his agent/composition for addition to foods may comprises 70.2% trehalose (col. 27, lines 42-51) or may consist of 85-97% trehalose (col's 27-29, Examples A-2, A-3, A-4). MARUTA further teaches that pullulan can be added to food compositions to which trehalose is also added (col. 32, lines 44-60). MARUTA does not specifically teach addition of trehalose to a fresh plant or plant part which has been sliced or disrupted.

CARDONA provides support that the vitamins of MARUTA are known antioxidants (abstract).

It would have been obvious to one of ordinary skill in the art at the time of invention to have added the trehalose of MARUTA to uncooked baby food (e.g. mashed fruits), uncooked juice, cut uncooked plants, or fresh pickles, as suggested by MARUTA's teaching that trehalose can be added to these foods, where the motivation would have been to sweeten the foods and aid in preservation of biological activities in the foods, as taught by MARUTA. The examiner interprets MARUTA's juice to be fresh, disrupted plants or plant parts as one does not normally cook a juice intended for drinking (e.g. orange, apple, grape, pear, etc.). As MARUTA does not specifically teach cooked baby food, and baby food is typically pureed, mashed, diced, etc. fruits or vegetables, the examiner interprets MARUTA's teaching of baby food to encompass both cooked and uncooked (fresh) disrupted plants or plant parts. The examiner interprets MARUTA's "fresh" radish pickles to be radishes to which pickling ingredients have been freshly added; i.e. which are not yet "pickled" or preserved, therefore addition of trehalose to the pickling juice of the "fresh" pickles would constitute addition to a fresh, sliced plant part.

Applicant's arguments filed 10/15/01 have been fully considered but they are not persuasive. Applicant alleges on page 4 of the response that in the Advisory Action of 9/17/01,

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no art rejections were made over claim 5. On the contrary, in the Advisory Action, the examiner maintained that the teachings of MARUTA, CARDONA and MANDAI made obvious the limitations of the claims then pending, and in the accompanying Interview Summary, explicitly maintained the rejections made under 35 USC 103. Applicant further argues in the response filed 10/15/01 that none of the examples of MARUTA teaches addition of trehalose to a fresh plant material. In response, it is noted that a reference is relied upon for the totality of its teachings and MARUTA does teach that trehalose may be added to a variety of foodstuffs including juice and baby food, which are interpreted to be fresh disrupted plants as set forth above. In response to applicant's argument that CARDONA does not remedy the argued deficiency of MARUTA, it is noted that CARDONA is cited to support that the vitamins which are stabilized by MARUTA's trehalose are antioxidants.

For the reasons set forth above, the examiner maintains that MARUTA and CARDONA make obvious the claimed method.

Amended claims 5, 10, and 31-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over MARUTA *et al.* (US 5,472,863), as supported by CARDONA (DE 3552309 A1), in view of MANDAI *et al.* (US 5,543,513).

The claims recite methods of inhibiting the decrease of naturally-occurring active-oxygen-eliminating activity by adding a composition comprising trehalose to a *fresh* plant or edible part thereof, as set forth above.

MARUTA and CARDONA make obvious a method of inhibiting the decrease of naturally-occurring active-oxygen-eliminating activity by adding a composition comprising trehalose to a sliced or disrupted fresh plant or edible part thereof, as set forth above. MARUTA further

teaches that pullulan may be added to his compositions, as set forth above. MARUTA does not teach addition of cyclodextrin with his trehalose.

MANDAI teaches a method of stabilizing food products, pharmaceuticals, etc. during desiccation by adding a composition comprising trehalose (col. 2, lines 57-67). MANDAI further teaches that his trehalose can be added to hydrous (i.e. aqueous) food products in liquid or paste form, wherein the food products include fresh fruit and juice (col. 6, lines 20-24). MANDAI also teaches that pullulan or cyclodextrin can be added, and teaches that these stabilizers can be mixed to homogeneity with the trehalose in a hydrous (liquid or paste) composition, before a drying step (col. 7, line 47-col. 8, line 31). MANDAI also teaches that the amount of trehalose added may be 0.01-50 parts by weight (col. 7, lines 34-39).

It would have been obvious to one of ordinary skill in the art at the time of invention to have added the pullulan and/or cyclodextrin of MANDAI in a composition with trehalose to the beans, radishes, and wild plants of MARUTA or to the fresh fruits and juice of MANDAI, in the method of MARUTA and CARDONA, where the motivation would have been to further stabilize the flavor and "effective components" (e.g. antioxidants) of the food products before drying, as taught by MANDAI (col. 7, line 41-col. 8, line 11).

Applicant argues that MANDAI teaches addition of trehalose as a desiccant *to stabilize food products* (emphasis added by examiner), but does not teach that trehalose can be used to inhibit active-oxygen-eliminating activity. It is noted that the claims recite *inhibiting the decrease* in active-oxygen-eliminating activity by adding trehalose, NOT inhibiting the active-oxygen-eliminating activity itself. The examiner assumes that applicant's argument is due to a typographical error, and will treat the arguments as if they were directed to activity of trehalose in inhibiting the decrease of active-oxygen-eliminating activity. Further, in order to simplify matters, the examiner will hereinafter use the term "antioxidant" to refer to "active-oxygen-

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eliminating" activities and compounds, with the understanding that applicant intends "active-oxygen-eliminating" to encompass a broader range of activities and compounds than "antioxidants." In response to applicant's arguments regarding the activity of trehalose as taught by MANDAI, it is noted that applicant admits that MANDAI uses trehalose as a stabilizer. Further, and in response to the argument that MANDAI does not supply the deficiencies of MARUTA, applicant should note that the rejection is made over a combination of references wherein MARUTA teaches that trehalose may be used to stabilize antioxidants in various foodstuffs. MANDAI supplies a specific teaching for addition of trehalose to fresh fruit or juice, and a teaching that cyclodextrin may be added. Applicant's arguments with regard to anhydrous trehalose are moot as the claims do not recite any particular formulation for the "agent" added or for trehalose in the claims.

For the reasons set forth above, the examiner maintains that MARUTA, CARDONA, and MANDAI make obvious the claimed methods.

Conclusion

Claims 5, 10, and 31-36 are rejected; claim 33 is objected to.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marjorie A. Moran whose telephone number is (703) 305-2363. The examiner can normally be reached on Monday to Friday, 7:30 am to 4 pm EST.

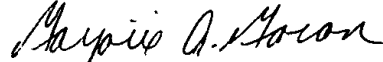
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward can be reached on (703) 308-4028. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4556 for regular communications and (703) 308-4556 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3388.


Marjorie A. Moran
Examiner
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December 21, 2001